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ABSTRACT

The first part of this document presents the results of a survey of early entrance testing procedures in 25 Florida districts and details teacher ratings of 486 first-grade and 154 kindergarten students whose entrance test results had permitted them to enter kindergarten a year earlier than other students with birthdays between October and January. Results suggested that Florida's early entrance program be discontinued because of average performance by early entrants, district testing costs, and possible negative effects on the 90 percent of children who failed the exam. The second part of the document, edited by Carolyn V. Spillman, presents three studies in which reading rate and comprehension of fourth, fifth, sixth, and seventh graders were assessed for materials presented in cursive or manuscript style. Results of these three studies indicated that fourth and fifth graders comprehend materials presented in manuscript style better than those presented in cursive style; no significant differences were found in sixth and seventh graders' reading scores for the two styles of writing. However, there were indications that children with reading difficulties would probably achieve proficiency in reading cursive at a slower pace than children who read on or above grade level. Several recommendations are given for instructional practice for both elementary and middle school teachers. (CB)

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RESEARCH BULLETIN



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Evaluation of Early Entrance to Kindergarten Program

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Linda B. Delapenha, Coordinator, Primary Diagnostic Services,
Department of Student Services;
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F.E.R.D.C. Notes on This Bulletin

This bulletin contains research on two very interesting topics. Hildebrand's and DeLapenhas's study on early entrance to kindergarten examined some of the practices of some 25 districts in depth. The findings indicated that most educators in the study were opposed to early entrance to kindergarten. The research is well done, thoroughly documented and extremely interesting to read. It has great value to early childhood specialists, parents and public policymakers.

Spillman and Associates have presented three studies on the relationship between manuscript and cursive writing to reading comprehension and speed. The studies were done in elementary and middle schools in one of the F.E.R.D.C. member districts. It should be of great interest to elementary and middle school classroom teachers and reading teachers.

These two studies represent the continuing effort F.E.R.D.C. takes in funding and disseminating research which public school educators deem to have value to the practitioners in school centers and local districts.

Charlie T. Council
Executive Secretary

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Introduction

This document will report the evaluation of the Early Entrance to Kindergarten Program. The evaluation was funded by the Hillsborough County Public Schools and the Florida Educational Research Development Council (F.E.R.D.C.) with the cooperation of the Florida Department of Education and most of the 67 school districts in Florida. The purpose of the evaluation was to collect and organize data which might be useful in assessing the Early Entrance to Kindergarten Program.

In 1979, the Florida State Legislature passed the Primary Education Act to provide comprehensive improvement of public education in kindergarten through grade three. Within this Act, Section 232.04 of the Florida Statutes was amended to change the age at which a child would be eligible for admission to public kindergarten. The amendment required a child to have attained the age of five years one month earlier per year until 1983 when the admission deadline for kindergarten would be September 1. In order to provide early entrance for students who missed the age deadline but who were five before January 1, those children had to "demonstrate a readiness to enter kindergarten in accordance with criteria established by the district school board" (Florida Department of Education, 1980).

For two years district school boards established local criteria for early admission, causing radical differences to exist among Florida school districts. These differences reflected two conflicting philosophies about what type of child should enter kindergarten early. One philosophy envisioned the early entrant as being a child who functions well above average academically, socially and emotionally (Few Four-Year-Olds, 1982). The other philosophy, while not describing a particular type of child, espoused beginning work with children as soon as possible and would deny admittance to only those who are performing well below average (Kindergarten Early, 1982).

School districts supported legislation in 1981 to amend the statute and to require the Department of Education to establish early entrance criteria for the state which would take effect in January, 1982. When a draft of the rules was reviewed by some

districts in the spring of 1982, complaints were made to the Department of Education. The differing philosophies were expressed at the Governor's hearings on Early Entrance to Kindergarten on June 15 and 29, 1982 (Florida Department of Education, 1982). Entrance criteria subsequently were set at the 80th percentile (rather than the 50th percentile), and one of three tests prescribed by the Department of Education had to be administered plus any additional criteria that a district might set forth.

Public attention became focused on both the concept and process of early admission to kindergarten and was expressed in newspaper articles across the state during August and September, 1982. With 10% or less of the four-year-olds qualifying for early admission, parents voiced their anger in numerous districts and some groups of parents threatened lawsuits.

The pressure for early academic achievement is but one of many contemporary pressures on children to grow up fast. According to David Elkind (1981), "All of us today are under a great deal of stress from our rapidly changing society. Some parents are so stressed that they become egocentric and either forget or find it impossible to use the knowledge we have about the nature and needs of children." The importance of a child's environment in relation to the development of his intelligence is a generally accepted concept. The period of time in which a child experiences the greatest impact from his environment is between the ages of one to five (Bloom, 1964). There is ample evidence of the importance of early childhood education in stimulating the young child's linguistic and cognitive development (McLeod, Markowsky & Leong, 1972).

Recent neurological research supports the fact that a stimulating environment will enhance the development of the brain in young children and that critical periods of development exist in which opportunities must be presented for maximum growth; language and speech are the best examples (Meisels &

Anastasion, 1972). Unfortunately, this type of research has been interpreted by some, without an empirical base, necessarily to mean formalized education and early reading. For instance, parents of bright children (and most parents of four-year-olds believe their children fall into this category) seem to feel that delaying entry into school for their four-year-olds will have disastrous consequences. In his work with pre-school gifted children, Karnes (1983) stresses the need to identify these children early and plan programs for them, but adds that the quality and depth of their experiences may be even more nurturing than acceleration.

The remaining portions of this document will be organized as follows: Evaluation Questions, Evaluation Methodology, Literature Review, Evaluation Findings, and Conclusions and Recommendations.

Evaluation Questions

Three general areas were addressed in this evaluation: 1) Early Entrance procedures by district, 2) success or failure of Early Entrance students, and 3) cost of the Early Entrance to Kindergarten Program. These general areas provided the basis for the development of the following set of evaluation questions. The questions were used only to guide the evaluation.

Early Entrance Procedures by District

1. Which state-approved test was adopted by each district for Early Entrance testing?
2. What additional criteria were adopted by each district?
3. When did Early Entrance testing begin?
4. Who did the testing?
5. What were the procedures for communicating the results to parents?
6. Were there any acts of physical or verbal abuse of children by parents that were witnessed prior to, during, or immediately following Early Entrance testing?

1981-82 Academic Year

Success or Failure of Early Entrance Students

1. How many Early Entrance students entered kindergarten in 1981-82?
2. How many 1981-82 Early Entrance students were retained in kindergarten?
3. How many 1981-82 Early Entrance students were promoted to transitional first grade classes?
4. What were the opinions of the classroom teachers of the 1981-82 Early Entrance students' emotional maturity levels, social skills, motor skills, PREP strategy assignments, etc.?
5. Do the current first grade teachers of the 1981-82 Early Entrance students view these students as having been ready for first grade?

6. How do first grade teachers view students who were eligible for Early Entrance but who attended private kindergarten in 1981-82 in terms of readiness, social maturity, motor skills, PREP strategy assignments, etc.?

1982-83 Academic Year

Success or Failure of Early Entrance Students

1. How many students were tested for the 1982-83 academic year?
2. How many students passed the test for the 1982-83 academic year?
3. How do the kindergarten classroom teachers view the 1982-83 Early Entrance students in terms of social skills, emotional maturity, motor skills, etc.?
4. For those who qualified for Early Entrance, what were the assigned PREP strategies at the beginning and end of the year?

Program Cost

1. How much does the Early Entrance program cost per student?
2. How much would be saved if Early Entrance did not exist?

Evaluation Methodology

The basic approach to the evaluation was one which borrows from several evaluation methods. The following rationale was adhered to in the evaluation.

1. The Early Entrance program could be described solely by data collected.

2. Additional questions revealed during the evaluation process were noted and addressed if possible.
3. Findings and conclusions based on the data collection would be sent to each participating district, to the Florida Department of Education, and upon request to other interested groups.
4. The evaluation results should allow for better decision-making.

The remainder of this section describes the various respondent groups, instruments, and procedures of the evaluation.

Respondent Groups

Each of the 67 Florida school districts was given the opportunity to participate in the Early Entrance evaluation study. Respondent groups were selected from the districts that volunteered to participate. The respondent groups from each district included the Early Entrance contact person and selected kindergarten and first grade teachers of Early Entrance students. Each district contact person and selected teacher received a questionnaire.

A few districts which had chosen not to participate were also contacted. The purpose of this contact was to determine if the information obtained from the volunteer districts was consistent with that of non-volunteer districts in selected areas.

Instruments

A series of questionnaires were developed by the evaluators to collect data related to the evaluation questions presented earlier in this report (see Appendices A and B). Each questionnaire was developed to match the specific respondent group. In addition, an interview schedule was developed to be used with non-volunteer districts. Prior to use, each instrument was reviewed by an advisory team made up of individuals connected with the Early Entrance program in various districts.

Procedures

The evaluation questions served as the basis for developing evaluation procedures. The evaluation activities included sending a set of questionnaires to each participating district. Accompanying all questionnaires was a set of directions. These questionnaires were sent in January, 1983. In addition, interviews were conducted in two districts.

Literature Review

In 1976, the Florida Education Research Development Council (F.E.R.D.C.) published a pamphlet entitled "When Should Parents Delay Entry of their Child into the First Grade," which reviewed literature beginning in 1920. This literature focused on differences between older and younger children who were "normal entrants" at the same grade level (Hedges, 1976). These early entrants must be differentiated from "screened" early entrants, those who were admitted through a testing process and demonstrated advanced mental development; the latter will be discussed as a separate group. No differentiation was made in the literature between early entrance to kindergarten or first grade; therefore, the data will be reviewed together. Two basic generalizations emerge from the body of research focusing on the achievement and social/emotional development of older and younger children at the same grade level:

1. Within the same grade level, older children generally do better than younger ones on standardized achievement tests.
2. Early entrants are generally rated lower than older classmates in social and emotional adjustment.

Studies of "younger" versus "older" children at the same grade level seem to report very similar findings: those who entered first grade at the younger end of the age range received lower

school marks and scored lower on achievement tests than did those at the older end of the age range (Weinstein, 1968). Longitudinal studies by R. D. Moon (1975), using 80,000 students who had been early first grade entrants in 47 states and were currently in grades two, four, and six, found achievement scores to be significantly lower in 46 of the states. Similar findings were available in at least eleven studies. Ogletree (1975) studied students who entered first grade at less than 74 months of age. Findings revealed that the percentage of academic failures exceeded the percentage of successes. In the 1977-78 academic year, Hillsborough County collected data on 1,457 students retained in first grade (Information, 1978). Approximately 50% of the retainees had birthdays between September and December. Ogletree, in his review of entrance age and schooling, suggested that the evidence is conclusive that early entrance to first grade does result in lower achievement.

Social and emotional adjustment of early entrants has not received as much attention by researchers as their academic achievement. The critical issue according to Weinstein is the age of the child in relation to his classmates, not so much the age at which he enters school. These younger children are more likely to be seen as emotionally disturbed by school personnel or be rejected by classmates in later school adjustment. Ogletree states that early entry children seem to have more emotional and social adjustment problems. Forced cognitive maturity may sacrifice emotional maturity and cause frustration, anxiety, alienation, and loss of interest. Forced learning may result in learning problems.

When the group of students is limited to mentally advanced children, research findings change somewhat. Ogletree stated that early entrance to school has been seen as one alternative to address the acceleration of these youngsters but is by no means a settled issue. When the group of early entrants is limited to students who were screened before entering kindergarten or first grade, two generalizations can be made from the existing research:

1. Screened early entrants (those who were admitted through a testing process) may achieve at a level comparable to the mean of classmates.
2. Screened early entrants may be rated lower by their teachers in social and emotional adjustment.

In 1972, McLeod studied 32 screened early entrants at the end of the second grade and found their achievement was not significantly different from that of normal age entrants. Hebbeler (1980) evaluated the achievement of early entrants with different selection criteria compared to the achievement of normal-age first grade students; the early entrant group with the more stringent admission criteria showed a score similar to the normal-age entrants, while the group with the less stringent criteria performed significantly below the normal-age group.

Weinstein stated that some evidence is available from studies that compare mentally advanced early entrants with normal entrants of equal intelligence which suggests that even among mentally-advanced children, a younger entrance age may lead to academic disadvantage. Supporting this thesis, Broward County's screened early entrants were compared to normal entrants scoring in the top 20% in pre-reading tests. The early entrant group scored significantly lower on achievement tests than the Braga's (1969) study in which early entrants were compared to groups of children with similar IQ's; no significant differences were found on achievement tests in grades three, five, and seven. The same held true in non-academic ratings. A comparison study by Ogletree of the achievement of bright early entrants with that of average ability, normal-age entrants showed the bright children achieved higher. It would appear that this body of research is still quite limited and conflicting.

Social and emotional maturity of screened early entrants has been minimally researched and usually is inadequately (if at all) measured at the time of entrance because of the lack of appropriate measurement tools. While most tests use the parent as an informant regarding the child's behavior, this may not be an objective measure because of the many reasons

parents want to enter their children in school early. In the studies that have been conducted by Hebbeler and the School Board of Broward County comparing the social and behavior adjustment in first grade of screened early entrants with regular first grade students, the results have indicated a lower rating by teachers in social-emotional adjustment for the early entrance students. Braga's study did not show any differences in students' adjustment with similar IQ's in grades three, five, and seven on rating scales and school records, but teachers claimed the early entrants did not adjust as well socially and emotionally. One would need a close look at the research instruments to see why this discrepancy seems to exist with respect to teacher perception.

This review of research would not be complete without mentioning an initial study which examines the eligible screened early entrant who chooses to delay school entrance to be with age peers. Parents are particularly concerned about whether this child will be bored or unchallenged by school. In Broward County, 75 students who could have entered first grade early but chose to remain in kindergarten were compared to early entrants. Although the early entrants scored higher than the kindergarten students on an achievement test, the behavior ratings of the early entrants were lower on sociability and self-reliance and higher on hostility than ratings of kindergarten students. The early entrants were chosen less often as playmates than the kindergarten students. This data leaves many unanswered questions regarding academic achievement, but does seem to suggest that the kindergartner who chose not to enter first grade early is better adjusted socially and emotionally and is probably happier about attending school.

Evaluation Findings

This section presents evaluation findings based on information collected. The evaluation covered three major areas: Early Entrance district procedures, success or failure of Early Entrance students, and cost. The findings are presented by major area. Responses are presented as group consensus on

the issues presented to respondents individually.

1982-83 Early Entrance Procedures by Districts

Fifty-four districts responded to the initial survey. A second set of questionnaires were completed by persons in more than 25 districts. Findings included the following:

- 1) The *Metropolitan Readiness Test (MRT)* was used by 53% of the districts, the *Comprehensive Assessment Program (CAP)* was used by 23% of the districts, and the *Comprehensive Test of Basic Skills (CTBS)-Readiness* was used by 14% of the districts.
- 2) Approximately 57% of the districts adopted the State requirements for Early Entrance. The remaining districts augmented the State requirements with local entrance requirements. Some of the additional requirements included measures in the area of vision/hearing acuity, auditory discrimination, motor coordination, maturity, and social development.
- 3) Approximately 70% of the districts did the testing for Early Entrance before and after the start of school.
- 4) The test administrators varied from teachers to principals. Some districts hired additional personnel to administer the test.
- 5) Sixty-two percent of the 54 districts indicated that they were somewhat negative to strongly negative about administering the Early Entrance test in the child's native, non-English language.
- 6) Districts used a variety of methods in communicating test results to parents. Some of the methods were letters, phone calls, conferences, and a combination of these methods.
- 7) Approximately a third of the district contact persons reported that there were some acts of physical and/or verbal abuse by parents at the testing site. Most of those reporting abuse indicated verbal abuse (i.e., name-calling, yelling, etc.).

- 8) Most (23/28) of the district contact persons felt that legislators should eliminate Early Entrance. Of the district contact persons who specified a date, most stated that children should be five on or before September 1 before entering kindergarten. They also indicated the age criteria for first grade should be in line with kindergarten (i.e., six on or before September 1).

1981-82 Success/Failure of Early Entrance Students

First-grade classroom teachers were contacted and asked to rate Early Entrance students in their classes. Data were received on 486 students currently in public school first grade. Some 323 students had attended public kindergarten and 163 had attended private kindergarten. (Note that districts determined their Early Entrance criteria for 1981-82; therefore, criteria were not the same as the Department of Education mandated 1982-83 cutoffs). Findings were as follows:

- 1) Students who entered early in 1981-82 had either November or December 1976 birth dates. Of the Early Entrance students, approximately 60% had November birth dates. In addition, 60% of the students were female and 80% were white.
- 2) Teachers were asked to rate these students on a 33-item questionnaire covering cognitive, affective and psychomotor domains. If a teacher rated a student as 1, this indicated the student was judged to be among the top two or three students in the class; 2, upper middle; 3, middle; 4, lower middle; and 5, lower two or three students in class.

Students currently in first grade but who were Early Entrance students and attended public kindergarten during the 1981-82 school year were rated on the average 2.37. This places the students between the middle and upper middle of their class. Early Entrance students who attended private kindergarten were rated as 2.89, or near the middle of their class. The overall rating for Early Entrance students currently in first grade was 2.54.

- 3) From the initial group of 486 students, a random sample of 50 Early Entrance students who attended public kindergarten and 25 who attended private kindergarten was further analyzed in terms of specific characteristics. Teachers rated Early Entrance students currently in first grade on the average as follows: brightness, 2.56; readiness, 2.62; motor skills, 2.58; social skills, 2.63; attitude, 2.44; acceptance by classmates, 2.35; and instructional reading level, 2.32. These students were ranked in the middle to upper middle of their class. The range of scores in each category went from 1 to 5. Some Early Entrance students were at the top, while others were at the bottom of their classes.
- 4) Because of the great variability which might exist across different classes, teachers were asked to describe their class as high ability, middle ability, low ability, or heterogeneous (some students from each ability group). Information matching a teacher's rating of a student (average age score on the questionnaire) and the teacher's indication of class ability level is presented in Table 1. Each student's average rating was calculated and the following scale used: 1 = 1.00 - 1.75, 2 = 1.76 - 2.50, 3 = 2.51 - 3.50, 4 = 3.51 - 5.00

Table 1

Early Entrants' Abilities with Respect to Type of Class

Type of Class	—Number of Students—			
	High 1	Upper Middle 2	Middle 3	Lower Middle 4
High Ability	34	13	7	1
Middle Ability	14	39	35	8
Low Ability	3	4	17	12
Heterogeneous	52	56	72	36
Unknown	9	11	11	4
Total	112	123	142	61

As can be seen in Table 1, 112 students were considered among the top two or three in their classes, 123 rated in the upper middle, 142 in the middle, and 61 in the lower middle of their classes. Students were spread across all ability groupings. Some 34 students were in high ability classes and rated as being among the top two or three in their class. Since the population of Early Entrance students is composed of only the top 10-12% of first grade students, high ratings by the teacher are to be expected. It is also consistent with expectations for students to be rated relatively low with respect to classmates if their class was primarily composed of high ability students (first row of table).

Additional analysis of Table 1 suggests that possibly poor decisions were made for some Early Entrance students. For example, an Early Entrance student rating in the middle of a low ability class does not match with expectations for that youngster, yet 17 students fell into this category. Furthermore, 12 students who were rated as low/middle ability by their teachers were compared to peers in a low ability class. In interpreting Table 1, all information in the area outlined with dashes(—) could be considered to be questionable placements.

One more interpretation can be made from the analysis of first-grade placement of Early Entrance students. Thirty-six students were placed in classes judged by teachers to be of low ability. It is quite possible that placement in such classes was based on low kindergarten performance; whether this was in fact the case or whether students were randomly placed cannot be determined from the available data. However, most Early Entrants in low ability classes were rated in the middle or lower part of their class, giving support to the hypothesis of placement due to kindergarten performance.

1982-83 Success/Failure of Early Entrance Students

Kindergarten classroom teachers were asked to rate Early

Entrance students in their classes. The rating scale was the same as that used for subjects in the 1981-82 Early Entrance Students section. Data were received on 154 Early Entrance to kindergarten students. These students had October, November, and December 1977 birth dates. The findings are listed below:

- 1) Characteristics of the 107 students who passed the test in Hillsborough County were analyzed. Fifty percent of the 107 students who passed were born in October, 31% in November, and 19% in December. Approximately 38% of the 107 students were males and 62% were females. Minority students represented 4.6% of the passing students. Of the 107 students that passed, 21 students decided not to attend public kindergarten. Some of these probably went to private kindergarten. Hillsborough County tested 915 students and had an 11.7% passing rate.
- 2) Approximately 7,600 students in the 54 counties took the Early Entrance to Kindergarten test. Based on this information, approximately 11,000 students across all counties took the exam.
- 3) The percent passing rate was collected. Using data from the initial survey in the fall and the survey given in March, the passing rate ranged from 10% to 11%.
- 4) Early Entrance students were rated on the average by their teachers as 2.19. This places the Early Entrance students close to the upper middle group.
- 5) Kindergarten teachers rated Early Entrance students on brightness as 2.16; academic skills, 2.06; motor skills, 2.43; social skills, 2.38; attitude, 2.10; and acceptance by others, 2.16. Early Entrance to kindergarten students were rated on the average near the upper middle of their classes. Students' ratings ranged by item from one to five.
- 6) Kindergarten teachers were contacted and asked to rate Early Entrance students in their classes. Data were received on 154 students. Teachers were asked to rate these students on a 33-item questionnaire covering

cognitive, affective, and psychomotor domains. In addition to rating the student, the teacher was asked to indicate the ability level of the class. Ability categories were high, middle, low, and heterogeneous (mixture of ability groups). Table 2 provides a comparison of class ability versus teacher ratings of students.

Table 2
Early Entrants' Abilities with Respect to Type of Class

Type of Class	—Number of Students—			
	High 1	Upper Middle 2	Middle 3	Lower Middle 4
High Ability	12	4	2	0
Middle Ability	8	10	10	0
Low Ability	..	2	2	1
Heterogeneous	18	23	15	5
Unknown	15	15	7	5
Total	53	53	36	12

Of the 154 students, 53 were rated by their teachers as performing among the upper two or three students in class, 53 were rated in the upper middle of their class, 36 rated in the middle of their class, and 12 were rated in the lower middle of their class.

Of the 53 Early Entrance to kindergarten students that were rated as performing among the upper two or three in their class, 12 were in high ability classes, 8 were in middle ability classes, 18 were in heterogeneous classes, and 15 were in classes for which the teacher did not provide an ability rating. These results showing Early Entrance students performing at the top of their class are consistent with what one would expect of these students. It is also conceivable for Early Entrance students placed in a high ability class to be rated by the teacher from the top of the

class to the bottom of the class. However, the data contained within the area outlined with dashes (—) in Table 2 gives rise to questions about the validity of the Early Entrance placement of some students. For example, ten Early Entrance to kindergarten students in middle ability classes were rated as performing no better than the middle of these classes, and fifteen students in heterogeneous classes were rated no higher than the middle of their classes. These students may not be performing at their expected level.

Early Entrance Program Costs

Each district was asked to supply the total cost of screening students for Early Entrance and what, if any, cost would be saved if Early Entrance did not exist. Based on the information received from 23 districts, the average cost per county was \$3,855.75. The cost ranged from a high of \$14,360 to a low of \$24,25. Costs varied due to the number of students tested and procedures adopted for screening. The cost was broken down into personnel time (salaries), postage, and test materials. If Early Entrance to kindergarten ceased to exist, 73% (16 districts) indicated a dollars saving would occur.

Conclusions and Recommendations

In 1979 the Florida State Legislature amended Section 232.04 of the Florida Statutes dealing with the age at which a child would be eligible for admission to public kindergarten. Originally a child needed to be five on or before January 1 in order to enter kindergarten; since 1979 the entering age has been moved back one month per year until the 1983-84 academic year with provisions for early entry for screened students. The entering age for the 1983-84 school year is five on or before September 1. This progression was designed to allow only those students with high probabilities of academic success to enter early. In question in the current legislature session is whether the provision for Early Entrance for students meeting screening criteria should be continued.

The belief that in general an older student will do better in school is well supported by research. It has been shown that more students pass Early Entrance tests with later birth dates (i.e., the October birth date passing rate is greater than the passing rate for December birth dates). In addition, a higher percentage than expected for first grade repeaters have birth dates in September through December.

Early Entrance to Kindergarten is a controversial subject which has both strong opponents and proponents. Most educators agree that for some students the opportunity to enter school early can be beneficial, and some research supports this belief. However, at this time the research does not exist to determine the effects of Early Entrance on students when they reach junior and senior high school and must compete with older students.

In the current study, teachers were asked to rate Early Entrance students' performance in their respective classes. Data was received on 439 first grade students. A correct Early Entrance decision was assumed to have been made if students were ranked among the upper two or three students or ranked in the upper middle of their classes, regardless of the type of class students were enrolled in as long as students were not in low ability classes. Of the 439 first grade students, approximately 239 (54%) were performing as expected; approximately 200 (46%) were not performing as expected. Of the 154 Early Entrance to kindergarten students, 107 (69%) were performing as expected; approximately 47 (31%) were not performing as expected. Combining first grade and kindergarten data, 346 of 593 (58%) students were seen as performing as expected. These findings imply that the decision to allow early entrance for 247 kindergarten and first grade students was questionable. These results are consistent with the literature reviewed.

While the placement of almost half of the 1981-82 and 1982-83 Early Entrants could be called into question, these students comprised only 10% of all students tested. The remaining 90% experienced failure in their first public school educational experience. Some of the effects of their failure were immediately evident; district persons reported that some parents placed

great pressure on their children to do well on the test and expressed their disappointment with the youngsters when they were unsuccessful. In the most extreme cases, some verbal or physical abuse was reported in a third of the districts in the study. The long-range effect of such early failures on later attitudes toward school is as of yet undetermined.

The Early Entrance to Kindergarten program is at best questionable. There is evidence that the program is not meeting the needs of some of the Early Entrance students and may be doing harm to some of the students who do not qualify for the program. In addition, the possible effect of junior and senior high school on Early Entrance students is unknown.

It is recommended that the Early Entrance program be discontinued and the age for starting kindergarten set at five years old by September 1. The age for first grade should be in line with kindergarten (i.e., entering the first grade if the child turns six on or before September 1).

ATTACHMENT A
EARLY ENTRANCE TO KINDERGARTEN PROGRAM

Student name: _____ Grade _____ Sex: Male _____ Female _____

Race: Black _____ White _____ Hispanic _____ Other _____ Date of Birth: _____

Rating time period: _____ Early Fall _____ February/March _____ (Month) _____ (Year) _____

REMEMBER: Each student is to be evaluated twice -- once for early fall and now. Both ratings are completed at the same time.

If first grade student, indicate kindergarten experience. Private _____ Public _____

Type of class this child is in (check one):

high ability _____ middle ability _____ low ability _____ some of each _____

Total number of students in the class _____

Rating

- 1 = "top two or three students"
- 2 = "upper middle group"
- 3 = "middle group"
- 4 = "lower middle group"
- 5 = "lower two or three students"
- N/A = "Not Applicable"

Characteristics	Rating					
	1	2	3	4	5	N/A
1. <u>BRIGHTNESS</u> : comprehends and learns rapidly and easily						
2. <u>THINKING SKILLS</u> : the ability to reason, solve problems, generalize, see relationships, and make logical associations						
3. <u>RETENTION</u> : retains what is learned without much drill						
4. <u>SELF-ORGANIZATION</u> : efficient in coordinating the materials/time required for independent task completion						
5. <u>DESIRE TO EXCEL</u> : motivated to learn and consistently puts forth maximum effort						
6. <u>LISTENING COMPREHENSION</u> : understands teacher verbalization, especially directions						
7. <u>VOCABULARY</u> : rich vocabulary marked by originality of thought/expression						
8. <u>SENTENCE STRUCTURE AND LENGTH</u> : mature quality of each						
9. <u>MATURITY OF PRONUNCIATION</u> : grade appropriate articulation						
10. <u>ORAL COMMUNICATIONS SKILLS</u> : the quality of relating thoughts and ideas						
11. <u>FINE MOTOR COORDINATION</u> : drawing mature and detailed, consistent hand preference with acceptable pencil grip						
12. <u>GROSS MOTOR</u> : good overall coordination including hopping, skipping, and jumping						
13. <u>FINE MOTOR COORDINATION</u> : copying shapes, letters, prints name, and cuts with scissors						
14. <u>SELF-RELIANCE AND INDEPENDENCE</u> : separates readily from parents, manages self-help tasks, requires little support in task completion						
15. <u>EMOTIONAL MATURITY AND SELF-CONTROL</u> : behaves in a mature manner and conforms to classroom rules						
16. <u>GROUP PARTICIPATION</u> : frequent volunteer, complies without reluctance						

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Characteristics	Rating					
	1	2	3	4	5	N/A
17. <u>LEADERSHIP QUALITIES</u> : obvious leader among classmates						
18. <u>SENSE OF HUMOR</u> : comprehends teacher jokes/puns, makes clever/humorous remarks						
19. <u>POSITIVE ATTITUDE TOWARD SCHOOL</u> : appropriate workhabits, responsive, interested						
20. <u>POSITIVE ATTITUDE TOWARD PEERS</u> : socializes appropriately with classmates needing little teacher intervention						
21. <u>POSITIVE ATTITUDE TOWARD SELF</u> : cheerful, relaxed, confident						
22. <u>ADAPTABILITY</u> : demonstrates appropriate reaction to change in daily routine						
23. <u>ATTENTION DURING STORYTIME</u> : enjoys storytime, pays close attention, good attention span						
24. <u>EXPRESSED DESIRE TO READ/WRITE OR HAS STARTED TO DO SO</u> : eager to learn						
25. <u>CURIOSITY</u> : interested in diverse topics						
26. <u>ENJOYS BOOKS/WORDS/IDEAS</u> : frequently chooses to look at books, asks for definitions/explanations, enjoys expanding ideas						
27. <u>ACCEPTANCE BY CLASSMATES</u> : establishes friendships, shares materials						
28. <u>PHONICS</u> : knows letter sounds, blendings						
29. <u>KNOWLEDGE OF NUMBERS</u> : counting, recognizing number symbols						
30. <u>PROPERTIES OF ARITHMETIC</u> : knows concepts (larger, smaller, etc.)						
31. <u>KNOWLEDGE OF ALPHABET/WORDS</u> : comes to school knowing most or all of the alphabet and some or many words (not applicable for January/February survey)						
32. <u>INSTRUCTIONAL READING LEVEL</u> : (not applicable for kindergarten students)						
33. <u>OVERALL</u> , your evaluation of this student is.....						

Sources: Druckman, William & Harris, Albert
Dance Behavior Rating Scale
Primary Diagnostic Team

APPENDIX 2

EARLY ENTRANCE TO KINDERGARTEN

District Contact Person Survey

DIRECTIONS: Please respond to each item on the survey. The information collected from the survey will be combined with the information received from your school district September, 1983.

1. District _____
2. How many students did you test for Early Entrance to Kindergarten in your district during the 1982-83 academic year?

3. How many students achieved a passing score? _____
4. Of those students achieving a passing score how many actually entered your kindergarten program?

5. Of those students tested, did you see, hear, or have reported to you any situation that would constitute verbal or physical abuse (e.g., the parent yelling, hitting, etc.)?
Yes _____
No _____
6. What is the Early Entrance to Kindergarten cost to your school district? (Please consider all costs including material and personnel time. Personnel time should be converted to dollars.)

7. If the Early Entrance to Kindergarten program ceased to exist, would there be a cost savings to the school district other than test materials?
Yes _____
No _____

If yes, please explain. _____

(over)

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8. In order to enter first grade, students must have either a private or public kindergarten experience. How do you perceive the students whose birthdate made them eligible for Early Entrance to Kindergarten last year, but chose to go to private kindergarten and are now in the first grade in your school district?

9. What action do you feel should be taken by legislators with regard to Early Entrance to Kindergarten? (You may want to consider the age requirement for first grade.)

10. Do you think legislators should continue the Early Entrance to Kindergarten program?

Yes _____

No _____

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EDITOR'S NOTE

Three years ago, Dr. Jean C. Linder, Dr. Gilbert Hutchcraft and I had several discussions regarding the current sequence of handwriting instruction in elementary schools. A shared concern related to the trend of teaching manuscript handwriting in first grade, followed with instruction in cursive handwriting barely two years later. The transition from one method of handwriting to the other style, however, was not the primary concern, but our most serious question was related to the impact of that practice on children's reading comprehension. Can children comprehend written material equally well when presented in either of the two handwriting styles?

The result of those discussions was a study in which we asked elementary age children to read and answer questions from material presented in both handwriting styles. Other factors which we studied were grade level of the child and level of reading ability.

The findings and implications of that research, which was supported by the Florida Educational Research and Development Council grant, are reported in this Bulletin as the first of three studies.

The second study is a replication of the initial research which examined the same factors in sixth grade students. This study was also supported by a grant from F.E.R.D.C.

The third study was conducted by a doctoral candidate from the University of South Florida at Fort Myers, Caroline Sue Martin, who studied seventh grade students using the same research protocol as in the first two studies but with a different measure of reading ability.

The three studies are presented separately with discussions of specific findings. The final section of this report contains a discussion of implications from all three studies for elementary and middle school teachers.

Carolyn V. Spillman, Editor
University of South Florida at Fort Myers

MANUSCRIPT VERSUS CURSIVE HANDWRITING: AN ANALYSIS OF THE EFFECT ON READING COMPREHENSION

Considerable attention has been given to the relationship between reading and writing. Many educators have written on the interrelatedness of the language arts skills (Loban, 1976), and a positive relationship has been concluded (Applebee, 1977). The relationship between reading and writing has also yielded many research projects and much educational literature (Hall, Moretz, & Statom, 1976; Weiner, 1979). Close examination of the literature reveals that the relationships among the language skills are usually indicative of interactions between reading and written exposition. The term "writing" usually excludes the mechanics of handwriting and refers to written discourse.

Handwriting has, by no means, been ignored in the educational literature, but the focus of research has not been on the relationship between handwriting and reading; instead, research related to handwriting has centered on the transition from one style of handwriting to another (Otto & Rarick, 1969) or the differences between the two styles in speed (Freeman, 1946; Hildreth, 1944) or legibility (Turner, 1930; Freeman, 1946; Anderson, 1966). Recent research has focused on instructional techniques for teaching handwriting (Askov and Greff, 1975; Hirsch and Neidermeyer, 1973; Halpin & Halpin, 1976; Sovik, 1976; Stennett, Smithe, & Hardy, 1972; Stewart, 1973).

From the literature on handwriting, it may be determined that two styles of handwriting have dominated the American classroom for the past six decades. Manuscript print is taught when children initially enter school. Within two or three years, it is gradually replaced by cursive handwriting (Early, Nelson, Kleber, Treagoab, Huffmon, & Case, 1976).

The support for the prevailing instructional practices of

introducing manuscript printing first, followed by cursive handwriting, is found in tradition rather than in a research base. The rationale for teaching manuscript print as the initial handwriting method includes:

1. Straight lines and circles, which are the predominant characteristics of manuscript print, are better suited to the eye-hand coordination of young children.
2. The symbols used in manuscript print are similar to the symbols used for the print which children are beginning to read.
3. Manuscript is more legible (Herrick, 1955).

Recently, some researchers in exceptional student education have taken opposition to the tradition of introducing manuscript as the first handwriting method and recommend teaching cursive as the initial handwriting style (Kaufman and Biren, 1979). The advantages of cursive as the initial handwriting method have been summarized as follows:

1. Cursive writing is continuous.
2. Cursive writing is connected.
3. Commonly confused letters no longer look alike in cursive style.
4. Cursive writing is highly motivating (Kaufman & Biren, 1979).

Early (1973), in his support of cursive as the first handwriting style, contended that the rhythm found in the production of cursive is not found in manuscript. Barham (1974) added support for the contention by suggesting that cursive, if taught in a stroke-by-stroke method as manuscript is taught, would leave children as frustrated with cursive handwriting as many children are with manuscript instruction.

Cursive writing has been proposed as an aid to spelling and reading (Kaufman & Biren, 1979). Kaufman & Biren contended that because there are fewer strokes to learn in the cursive style, it is easier for children to learn to write. Their proposal was aimed at exceptional children, but they stated that the principles set forth may also apply to children who are not in exceptional education.

An educator in Denmark has supported the proposal that cursive writing aids the reading process (LaCour, 1980). She states, "The early practice of cursive handwriting will strengthen the process of learning how to read, because the children will become familiar with the appearance and the name of each letter from the very beginning." (p. 162.) Her rationale is that when children transfer recognition of a printed symbol into a cursive symbol, they must have the cooperation of the visual, auditory, and kinesthetic areas of the brain. According to LaCour, the transfer of one symbol to another is missing when children learn manuscript print, because the printed symbol in the reading text is the same symbol as the one being produced by the children.

The majority of the literature which questions the tradition of teaching manuscript as the initial handwriting style or suggests the introduction of cursive as the beginning handwriting method, is based on opinion or observation. One study, however, conducted by Early, et al. (1976), evaluated a group of children whose initial instruction was in cursive handwriting and found that beginning handwriting with the cursive style was not detrimental to the children's progress in reading and spelling. Inversely, they found that children who were taught cursive as the initial handwriting style scored significantly higher in word reading and spelling than those children who were taught by the traditional method.

Considerably more research must be conducted before any conclusions may be drawn regarding the effects of the initial handwriting style on the acquisition of subsequent or concurrent language skills such as reading or spelling.

Another facet of the relationship between reading and handwriting lies in the ability of children to read both styles of handwriting equally well. Regardless of which method is used for initial handwriting instruction, is there a difference in the reading comprehension when reading one style as opposed to the other? A research study conducted by Plattor and Woestehoff (1967) dealt with the "degree to which reading skills are transferred from one style of print to another." (p. 50.) They asked questions about the relationship between children's ability to read cursive and their ability to write cursive. They administered reading tests to children in grades one, three, and five with portions of the tests presented in manuscript and other portions presented in the cursive style. They also evaluated third and fifth grade students using Zaner-Bloser Handwriting Scales. Correlations were obtained between scores on manuscript and cursive forms of the reading tests. The relationship between reading and writing in the cursive style was determined through the use of a chi square. High positive correlations were found between the performance of children with material presented in manuscript and with material presented in cursive. Chi square values were not significant, indicating the lack of a relationship between the ability to read cursive and the ability to write in the same style. A pronounced positive relationship was found between the ability to read manuscript and the ability to read cursive writing. Plattor and Woestehoff concluded that for children who read manuscript, regardless of their ability to write in the cursive style, the reading skills should transfer to reading in any handwriting style. They cautioned teachers to give substantial attention in reading cursive handwriting to anyone who previously had difficulty with reading skills.

A number of factors were not addressed in the Plattor and Woestehoff (1967) research. One factor which could affect the results of studies of reading manuscript versus reading cursive handwriting is the length of time children have been writing in one style or the other. As is the tradition, children will make the transition from one style to another two to three years after the

initial instruction. Children who have been writing in the cursive style for several years should have an advantage in reading cursive over children who have recently made the transition from manuscript to cursive. Data are not available on the practice recommended by Barham (1974) that children be given many opportunities to read cursive before beginning to write in that style.

A second possible factor regarding the question of reading manuscript versus reading cursive which Plattor and Woestehoff (1967) neglected in their research is the reading ability of children at the time of assessment of their skill in reading manuscript or cursive styles of handwriting. Certainly, as Plattor and Woestehoff (1967) warned, children with difficulties in reading will also have difficulties in reading cursive handwriting.

The sparseness of research in some areas related to handwriting and reading comprehension led to the question asked in this research project: Is there a difference in the comprehension level of children while reading manuscript as opposed to reading cursive handwriting?

It is recognized that during and after the transition to cursive handwriting, children are presented materials in both manuscript and cursive styles. Printed reading materials continue to be given to children with symbols similar to manuscript, while teacher-developed materials such as duplicated materials, overhead transparencies and chalkboard activities may be presented in either manuscript or cursive style.

Are teachers justified in assuming that, once cursive handwriting has been introduced, it can be read as easily as manuscript symbols? When tests are presented to children in the cursive form, are we testing their knowledge of the content or their ability to read in cursive handwriting?

Research Questions. This research was defined as an investigation to determine if there is a difference in the level of

comprehension obtained through reading material which has been written in cursive style as opposed to manuscript style with the following variables:

1. children who have recently (within a year) gone through the transition to cursive handwriting (fourth grade);
2. children who have been introduced to cursive or have been writing in cursive for at least one year (fifth grade);
3. children who are reading one year below grade level;
4. children who are reading one year above level;
5. children who are reading on grade level.

The relationship of these variables, grade placement (GP) and reading levels (RL), with the reading of material written in the two styles of handwriting was suspected as an influence on children's reading comprehension.

Logically, children who had been introduced to cursive handwriting for a longer period of time would demonstrate a greater degree of comprehension while reading material written in the cursive style than children who had more recently been introduced to cursive. Likewise, it seemed that the reading levels of children would interact with the process of comprehension while reading cursive. It was expected that children who were reading below grade level would comprehend material written in the cursive style less well than those on or above grade level.

Subjects. The subjects for this study were 71 fourth and fifth grade children from two schools in northwest Lee County in Florida. The two schools are in comparable suburban settings with populations including children bussed from other parts of the county. The sample had equal representatives from each sex.

Procedure. The Silvaroli Classroom Inventory was selected as the instrument for the study. It is an informal reading inventory consisting of a graded word list and a set of graded paragraphs for primer through grade eight. Three comparable forms, A, B, and C, are available.

Form B of the inventory was used to check students' accuracy and comprehension in reading manuscript style. Form C, reproduced with picture clues and the paragraphs, was copied in cursive handwriting.

The assessment procedure was administered to individual children by one of two experimenters (Es). The word list was given initially to each child to enable the E to determine a beginning point for each child. Instructional and frustration reading levels were then determined after the children had read the paragraphs and their comprehension level on each of the paragraphs was ascertained.

Following the determination of each subject's (S's) instructional level on Form B paragraphs in printed type, each S was given a paragraph from Form C written in cursive handwriting on the S's instructional level. The comprehension level was determined also for the paragraph which was read in the cursive style. The levels of comprehension on the two forms were compared to determine differences when material was read in print as opposed to being read in cursive handwriting.

For the purposes of this study, instructional reading level was defined as the level at which the student read orally with at least 95% accuracy (no more than 5/100 errors) and responded correctly to comprehension questions with at least 60% accuracy (no more than 2/5 errors).

Analysis. A three-factor analysis of variance with repeated measures on the writing factor was used to analyze the data.

Findings. A major finding of the study was: All students, both fourth and fifth graders, below, on, and above grade level placements in reading, made a significantly greater number of

errors in comprehension when reading material in cursive as opposed to reading comparable material in manuscript writing form ($p < .001$).

Source Table for Comprehension

SOURCE	SS	df	MS	F	p
Between subjects	264.7	70	-		
Reading Level (above, on, below)	18.7	2	9.5	2.71	.10
Grade placement (4th, 5th)	3.7	1	3.7	1.06	-
RL X GP	14.3	2	7.2	2.06	.20
Error between	228.0	65	3.5		
Within subjects	356.5	71	-		
Writing (manuscript vs cursive)	144.0	1	144.0	46.5	.001
W X RL	5.8	2	2.9	.9	-
W X GP	1.50	1	1.5	.5	-
W X RL X GP	5.9	2	3.0	.9	-
Error within	199.3	65	3.1		
Total	621.2	141	-		

The analysis for differences in comprehension based on reading level placement revealed no significant differences. It was believed that children who were reading below grade level would encounter significantly more difficulties while reading in the cursive style than children reading on and above grade level. Evidently the negative effects on comprehension, when children in this sample read material presented to them in the cursive style, were found in all levels of reading ability and difficulty with reading per se did not enhance the difficulty of reading in the cursive style.

Additionally, it had been theorized that fourth graders would have more comprehension problems while reading cursive handwriting than fifth graders. It was assumed that the length of

time since the introduction of cursive handwriting and better comprehension while reading cursive style were positively correlated. The analysis, however, did not substantiate the assumption; no significant differences in comprehension were found to be related to grade placement.

The conclusion from this research was that reading comprehension is significantly lowered when children in fourth and fifth grades read materials written in cursive handwriting.

Discussion. These data support a significant difference in comprehension levels while reading materials printed in manuscript and cursive forms. Even in fifth grade, when children had written and had read cursive handwriting for more than a year, the comprehension was significantly higher when the material was presented in the printed format.

Teachers need to be aware that both the teaching and the testing of content material in cursive form may result in lower student achievement, not because of the content itself, but because of students' lack of facility in the handwriting style in which the material is presented.

These researchers are not suggesting that children be allowed to read in manuscript print to the exclusion of cursive style, but it seems that assessments certainly should be conducted with the presentation of materials in a style which will enable the teacher to make more accurate diagnostic judgments.

Questions which have generated from this research are related to the eventual disappearance of differences in comprehension while reading in the two handwriting styles. Certainly, a large number of adults feel that they can comprehend equally well when reading in either handwriting style. Is there an age at which the differences disappear? A replication of this study in middle or secondary schools would help determine if there is an age at which the level of comprehension does not differ as a function of the style of handwriting in which material is presented.

THE RELATIONSHIP BETWEEN HANDWRITING AND READING COMPREHENSION AMONG SIXTH GRADE STUDENTS

The previous study reported in this *Bulletin* (Linder, Spillman, & Hutchcraft) examined the reading comprehension of fourth and fifth grade students when comparable material is presented in two handwriting styles: manuscript and cursive. They found significant differences in comprehension when material was presented in the two styles of handwriting, with both age groups obtaining scores of higher comprehension when material was presented in manuscript.

One of the questions which remained unanswered in the previously mentioned research was related to the validity of the findings for other age groups, specifically, middle school students.

In middle schools, as in elementary schools, textbooks and other commercial materials are presented to students through manuscript print, but direct instruction from teachers may include chalkboard instructions, questions, or background materials which are written in cursive or manuscript style. Pre-constructed tests and worksheets may also be presented in either style. Is it reasonable to assume that sixth graders, like fourth and fifth graders, comprehend significantly better when reading manuscript print? On the other hand, can the assumption be made that, at some point, there will be no difference in one's ability to comprehend material written in either handwriting style?

Research questions. This replication study investigated the difference in comprehension level while reading when material was presented to sixth grade subjects in manuscript and in cursive handwriting. As in the previous study, the subjects were grouped according to reading ability.

Subjects. The subjects for the study were selected from the

sixth grade population of a large middle school in Southwest Florida. The setting of the school was suburban, but a cross-section of urban and rural students was also present in the school population as a result of bussing. Measures were not used to determine the geographic home area or socioeconomic level of each student because it was not considered relevant. The total number of subjects was 68, and both sexes were equally represented. Sampled were 28 students who had scored one year above grade level on the comprehension sub-test of the California Achievement Test; 21 who scored on grade level, and 19 who scored one year below grade level.

Variation from the exact replication of the earlier study lay in the use of only one grade level, sixth grade, instead of two grade levels. The reason for this variation was inherent in the tool used to gain comprehension scores while reading in each of the handwriting styles: the Silvaroli Classroom Inventory. The research procedure in the earlier study called for each subject to reach the frustration level before determination could be made of the instructional level. The materials in the Silvaroli Classroom Inventory only extended to an eighth grade level and was not sufficiently high for obtaining a frustration level on seventh grade students who were reading a year above grade level. This study, therefore, was confined to sixth grade students.

Procedure. The procedure for this research was identical to that of the Linder, Spillman, & Hutchcraft study. Students were presented Form B of the Silvaroli Classroom Inventory as it is commercially printed. The level chosen for the initial reading for each subject was dependent upon the score received from the graded word list. The subjects individually read the selection aloud and answered comprehension questions which were read to them. Each subject's instructional reading level was determined on the basis of the subject's reading and comprehension of material presented in manuscript print. A selection from Form C of the Silvaroli Classroom Inventory was then given to the subject in cursive handwriting on his instructional level.

Differences of comprehension scores were obtained for subjects' reading of manuscript and then cursive handwriting.

Analysis. A two-way analysis of variance with repeated measures on the writing style revealed no significant differences on the level of comprehension and no significant interactions.

Findings. These findings noticeably depart from the findings of the earlier study in which significant differences were found in fourth and fifth grade children in levels of comprehension reading in the different styles of handwriting.

Based on the statistical analysis of these data, it appears that by middle school age, children can read and comprehend in one style of handwriting as well as the other.

Discussion. These findings suggest that through continuous exposure to materials presented in cursive handwriting, as has been the experience of middle school children, students gain the ability to comprehend material presented in the cursive style. Simply, the more experience one has with an activity or task, the more proficient he becomes in achieving the objectives of the task.

With the differences in comprehension at the $p < .001$ level when fourth and fifth grade students read in two handwriting styles (Linder, Spillman, & Hutchcraft) compared to the findings of no significant differences in this study, questions arise regarding the progression of students' ability to read equally well in either style. Is there a gradual process in the students' ability to read as well in one style as the other?

An examination of the mean percentage level of comprehension for the sixth grade sample gives some insight into the trend toward differences. The 28 subjects whose reading level was predetermined to be one year above grade level had a mean percentage on comprehension of 75 while reading manuscript and 71% for cursive reading. The 21 children, who were reading on the sixth grade level, scored 68% on the manuscript task and 73% while reading cursive. Nineteen children who were one year

below grade level scored 71% while reading manuscript and 64% while reading cursive.

For the groups of children in the above and below grade level for reading, the mean percentages indicate better comprehension while reading in manuscript. The sixth graders who were reading on grade level, however, performed better while reading in the cursive style. Although the percentage differences in all groups could have been caused by chance, it is interesting to speculate on the trends. Questions which cannot be answered here relate to the influence of social interactions among the group of children who read on grade level as opposed to being above or below grade level. To what extent is peer pressure involved in motivation to read well in the cursive style? Is motivation higher for children reading on grade level than for those reading above or below grade level?

Although those questions cannot be answered, another factor casts a shadow on the strength of the findings of this research: variability among subjects within each of the grade placement groups. The variations among subjects within each group were high; children below grade level scored from 0-100% on comprehension in the cursive reading. The variability among subjects within a group causes one to question the accuracy of the comprehension score on the California Achievement Test, which was used for placing children in groups by reading ability.

The fact that there was so much variation among the subjects certainly signals a caution in accepting the lack of a significant difference as meaning that all middle school children can read in cursive as well as in manuscript. Obviously, there are a number of middle school children who had difficulty with the tasks in this study. Although the data did not yield significant differences in this study, the findings should be viewed with caution because of the extreme variability of scores within each group.

The results of this study indicate that although middle school teachers may expect many of their students to read and comprehend equally well in either of the handwriting styles, consideration should be given to children below grade level in reading ability. Grades from tests which are presented to

students in cursive form should be compared with grades from comparable tests given to students in printed form. If differences are apparent among students, consideration should be given to permitting those students to be tested only with printed materials.

Chalkboard activities and instructions, duplicated materials, transparencies for overhead projectors and other teacher-made materials should be presented to students in standard cursive handwriting as often as possible to continue students' graduate proficiency in reading cursive handwriting.

COMPARISON OF READING COMPREHENSION AND SPEED AMONG SEVENTH GRADE STUDENTS WHILE READING IN TWO HANDWRITING STYLES

In the computer age of the 1980's, students read materials which are presented in a combination of writing styles. The mode in which materials are presented varies from commercial print, to manuscript print, to cursive handwriting.

In the two research studies previously reported in this *Bulletin* (Linder, Spillman, & Hutchcraft), researchers found, what appears to be, a developmental trend in which children who have recently made transition from manuscript to cursive handwriting comprehend significantly less while reading in cursive than in manuscript, while children in sixth grade who have had several years of instruction in cursive handwriting, read and comprehend equally well in both handwriting styles.

A replication, with seventh grade students, of the Spillman research which found no significant differences among sixth graders while reading materials presented in either style of handwriting, was the major intent of this study. This research was also an effort to strengthen and extend the implications of the earlier research and to explore another question of relevance to teachers of middle school students. The question relates to the speed with which middle school children read and comprehend materials presented in the two handwriting styles.

Some research has found no differences in the speed with which one can write in the two styles of handwriting (Freeman, 1946; Hildreth, 1944), but documentation is lacking regarding differences in speed of reading manuscript as opposed to cursive.

In addition to the study of the speed of reading material presented in the two handwriting styles, another variation of this study from the earlier research is in the assessment tool with which data on comprehension levels are gathered. The Spillman

study used the Silvaroli Classroom Inventory for the investigation of sixth grade students, but was unable to test seventh graders because of the ceiling of the assessment. In this study, the Informal Reading Assessment developed by Paul C. Burns of the University of Tennessee at Knoxville and Betty D. Roe of the Tennessee Technological University was the instrument selected for use. Its range of pre-primer to twelfth grade assessment capacity gave the latitude needed to establish student instructional and frustration reading levels.

Design. This study is a two-factorial design in which seventh grade students were grouped according to reading level by a score on the California Achievement Test. They were grouped according to scores on the reading comprehension sub-test into three groups: on reading grade level, one year above level, and one year below level. The measures taken on these students during the experimental sessions are 1) their comprehension scores while reading from the Burns & Roe Informal Reading Assessment in handwriting styles of manuscript and cursive; 2) the time needed for completion of reading the materials.

Sampling Procedure. A sample of sixty students enrolled in a large suburban middle school in Southwest Florida was selected from the seventh grade students who had taken the California Achievement Test during the previous spring. The seventh grade population was divided into three groups:

- | | |
|--------------------|--|
| Above grade level: | Those students who scored between 7.5 and 8.6 grade equivalent on the reading comprehension sub-test of the California Achievement Test. |
| On grade level: | Those students who scored between 6.0 and 7.2 grade equivalent on the above. |
| Below grade level: | Those students who scored between 4.8 and 5.9 grade equivalent on the above. |

By limiting the sample to exclude students who scored below 4.8 or above 8.6 on the California Achievement Test, those atypical students with extreme scores were eliminated from the study. Within each sub-group, above grade level, on grade level, and below grade level, a sample of ten boys and ten girls was randomly selected as subjects for the study.

Data Collection. Each student was administered Form B of the *Informal Reading Assessment* in manuscript print to determine the instructional level. Data collected included the reading rate which was computed in words per minute, and the percentage of comprehension questions answered following the reading.

When the instructional level for reading manuscript was established and data collected, the student was administered Form A of the same test with reading samples presented to the student in cursive handwriting.

In an attempt to minimize experimenter differences, all students in the sample were individually tested by two experimenters who followed a planned procedure.

Data Analysis. A two-factor mixed design with repeated measures on one factor was used to analyze the data. This two-factor mixed design is basically a combination of the completely randomized design and the treatments-by-subject design. Not only does this design permit comparison of the differences in the overall performance of the subjects in the experimental groups, but it also permits evaluation of the changes in performance shown by subjects during the experimental session. It is known by various names and is discussed in several textbooks (Edwards, 1960; Lindquist, 1953; and Winer, 1962).

Findings. The statistical analyses revealed no significant differences in performance while reading manuscript print as opposed to cursive handwriting. There were no differences found across the three reading levels, reading rate, or percentage of comprehension. There were also no interactions among any of the variables.

Analysis charts are shown below for the measures of performance. All null hypotheses were tested at the .05 level of significance.

Reading Comprehension

SOURCE	SS	df	MS	F
Total	46,470.0	119	390.5	
Between subjects	36,357.0	99	619.6	
Conditions	2,880.4	2	1,440.4	2.1
Error b	33,676.9	57	590.8	
Within subjects	9,912.7	60	165.2	
Trials	16.87	1	16.8	0.10
Trials x conditions	698.78	2	319.4	
Error W	9,257.06	57	162.4	1.96

Reading Rate (Words per Minute)

SOURCE	SS	df	MS	F
Total	116,437.9	119	978.47	
Between subjects	90,924.4	99	1,541.09	
Conditions	7,512.7	2	3,756.3	2.56
Error b	83,411.8	57	1,463.4	
Within subjects	25,513.5	60	425.2	
Trials	2,349.7	1	2,349.7	5.65
Trials x conditions	531.6	2	265.8	
Error W	23,096.4	57	415.7	

Discussion. This study has supported the Spillman study in which significant differences were not found among sixth grade students in their performance in answering comprehension questions when materials were presented in manuscript and then in cursive handwriting.

This research supports the notion of a developmental/experiential trend in the ability of children to read in both handwriting styles. Given time and experience with cursive handwriting, children in middle school grades read and understand materials as they are presented in either handwriting style.

IMPLICATIONS OF RESEARCH ON THE RELATIONSHIP BETWEEN HANDWRITING STYLE AND READING COMPREHENSION

Three research studies suggest that the transition from manuscript handwriting to the cursive style may be more complicated than once thought. Earlier research (Plattor and Woestehoff, 1967) indicated that if a child could read in one style of handwriting, transition to the other style should not be difficult. These results were not supported in the research reported by Linder, Spillman, & Hutchcraft. On the contrary, the data supported significant differences which clearly showed higher comprehension scores among fourth and fifth grade children while reading materials presented in manuscript.

The replication, which examined the scores of sixth grade students, found no statistically significant differences among scores while children read either style of handwriting. There were trends, however, which indicated that children with reading difficulties would probably achieve proficiency in reading cursive at a slower pace than children who read on and above grade level.

The second replication studied seventh grade students and the data supported the previous study.

Implications differ for teachers of elementary grades and middle school; however, each group of teachers should be aware of the implications for the other group.

The instructional practices related to transition from manuscript to cursive handwriting will be discussed and recommendations given. One instructional practice, which was mentioned in the review of the literature on the relationship between handwriting and reading comprehension, was that children should be given *many opportunities to read in the cursive style before being required to write in cursive* (Barham, 1974). It makes good educational sense for teachers in third grade to introduce children to the visual configurations of

cursive handwriting before they begin introducing each letter separately. Friendly letters written to the class as a group could be transferred to an overhead transparency and shared with the class. As the letters are read aloud by the teacher and the children, the slant, the connecting tails, and the differences between manuscript and cursive styles could be pointed out gradually. The individual letters should be available after the group session for independent reading and perusing. Teachers in third and fourth grades may evaluate how well children comprehend in the cursive style by giving directions for an already known activity with instructions written on the chalkboard or on an overlay in cursive handwriting. Observation by the teacher will reveal those children who read and understand the directions. (The teacher must present the directions in clear, concise words.)

Concurrently with the children's introduction to the cursive style, children must be given many opportunities for reading and writing in both styles of handwriting. Although it is important for children to have meaningful activities for practicing cursive handwriting, a large number of instructional activities must still be presented to children in manuscript print. It is suggested that review materials and practice activities be presented in cursive handwriting in the fourth and fifth grades, while introductory concepts and skills be presented to children in manuscript form. The basic concern for elementary teachers should be that children are not penalized for lack of comprehension when the actual problem is lack of proficiency in reading the handwriting style.

An excellent opportunity for children to read cursive handwriting in the fourth and fifth grades lies in children writing, reading, and co-editing each other's work. Through this activity, children will be reading vocabulary on their own level, thus providing more predictive ability. The author of the material which is being edited will be present to provide immediate feedback to the editor on his comprehension of the material.

Perhaps the most important of these suggestions is that assessments should be given only in manuscript print in the

elementary grades. Since the research clearly indicates that fourth and fifth grade students on all reading levels comprehend to a greater degree while reading material presented in manuscript, it is imperative that assessments be presented in the style with which children most successfully comprehend. If assessments are presented to children in the cursive style, the evaluation reflects the level of ability to comprehend material presented in cursive handwriting rather than the content of the assessment.

Implications of the research for middle school teachers are relevant to elementary grade teachers because of the indication of the impact of experience. The more experience elementary grade children are given with cursive handwriting, the easier it will be for middle school age students to comprehend while reading in cursive.

Middle school teachers may be less concerned about their consistency in presenting materials to children in one style of handwriting or the other, since the style apparently does not make a difference in comprehension among sixth and seventh grade students. Consideration should be given, however, to students who are reading below grade level. It should be noted once more that the variation among comprehension scores for students in sixth grade who read below grade level ranged from 0-100% while reading in the cursive style. The variation affected the statistical analysis, and the finding of no differences should be viewed with caution for children who read below grade level. It is very probable that children whose reading scores are a year or more below grade level should be presented all assessments in manuscript form as was suggested for fourth and fifth grades. It is hoped that the impact of these three studies will be to bring into focus the relationship between the language skills of handwriting and reading and will be a springboard for further research.

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